NOVEMBER, MDCCCLV.

THE ZOOLOGIST:

A

POPULAR MONTHLY MAGAZINE

OF

NATURAL HISTORY

AND

JOURNAL FOR RECORDING FACTS & ANECDOTES

RELATING TO

QUADRUPEDS, BIRDS, REPTILES, FISHES, ANNELIDES,
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To Ornithologists and Naturalists.

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British Birds and Insects.

A COLLECTION of BRITISH BIRDS, INSECTS, and BIRDS' EGGS, will be SOLD BY AUCTION, by Mr. J. C. STEVENS, at 38, King Street Covent Garden, on FRIDAY, NOVEMBER 2, without Reserve, at 12 for 1 precisely. Th Collection consists of some Rare LEPIDOPTERA and 170 Lots of BIRDS' EGGS Collecting Boxes, Store ditto, Setting Houses, and every necessary for the Entomologist also a Copy, in Calf, of WESTWOOD and HUMPHREYS, RENNIE and others on NATURA HISTORY; Egg and Insect Cabinet, &c.

A SMALL COLLECTION of EGGS, the property of a Gentleman deceased, to be SOLD BY AUCTION by Mr. J. C. STEVENS, at 38, King Street, Covent Garden, on FRIDAY, the 9th of NOVEMBER, 1855, consisting of the following Rare Specimens:—Griffin and Egyptian Vultures; Golden, Cinereous and Osprey Eagles; Kites; Peregrine and Redlegged Falcons; Honey, Roughlegged and Common Buzzards; Montagu's, Marsh and Hen Harriers; Snowy, Eagle and other Owls Rose Pastors, Black Woodpeckers, Bee-eaters, Great and Little Bustards, Black-winged Stilts, Cranes, Turnstones, Rose Sandpipers, Knots, Spotted Redshanks, Little Crakes, Baillon's Crakes, Rose Terns, Gulls, &c.; Petrels, Geese, Ducks, Northern and Black-throated Divers, and Little Auks.

May be viewed on the day before the Sale, and Catalogues had of Mr. J. C STEVENS, 38, King Street, Covent Garden.

'*Catalogue of British Hymenoptera in the Collection of the British Museum.*' By Frederick Smith, M.E.S. Part I. Apidæ—Bees. London: Printed by order of the Trustees. 1855. 248 pp. 12mo, 10 plates: price 6*s.*

Our readers will doubtless recollect Mr. Smith's admirable papers on British Bees which appeared from time to time in the pages of the 'Zoologist.' There was a comprehensiveness of thought, a mastery of the subject, and a lucidity of arrangement about them, which at once raised the author to the very highest rank as an entomological writer, and which rendered the students of our bees the greatest possible assistance. To myself these papers were of peculiar value and interest, inasmuch as for several years I had paid almost exclusive attention to this somewhat neglected tribe; and with Kirby for my guide I had succeeded in identifying a large proportion of our species. Admirable, however, as are the descriptions of the 'Monographia,' I could not resist the conviction that a more intimate knowledge of the living insects would have induced the learned author to associate, under one specific name, bees which appeared to me to differ only in sex or in the still less satisfactory character of age. Mr. Smith did everything I desired, associating sexes and varieties, with a judgment that struck me as little less than miraculous. From that time to the present Mr. Smith has directed great attention and much time to perfecting his knowledge of the tribe, until his researches have culminated in the production of a volume which must unquestionably be pronounced the best entomological monograph in the British language. This is saying a great deal, when we bear in mind the labours of Kirby, Shuckard, Denny, Stainton and others; but it is the peculiar charm of Mr. Smith's writings that he always carries conviction to the mind that he is perfectly acquainted with the subject on which he is writing. Other authors appear to do the best that can be done "considering the obscurity of the subject,"—"considering the paucity of materials,"—"considering the erroneous statements of previous writers, and the utter worthlessness of their labours:" Mr. Smith needs no such apologetic qualifications: no man living surpasses him in his knowledge of the subject, and no one has hitherto surpassed him in making that knowledge available to others.

A debt of gratitude is also due to Dr. Gray for the zeal and energy he has displayed in the publication of such works as these; for although this may possibly be the only one of the series properly

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entitled to be considered a perfect monograph, yet the others are of incalculable value to the student, and now form a key to the knowledge of the animal world. I believe the whole of them are issued at the mere cost of printing and paper, in order that naturalists may derive the greatest possible amount of benefit from their publication.

In support of my unqualified commendation of Mr. Smith's volume I proceed to make a copious extract, which I trust will be read by others with the same pleasure that it has given me, premising, however, that I purpose returning again to these bees, and giving a somewhat more systematic account of their methodical arrangement, and adding to Mr. Smith's labours a running accompaniment of my own. The passage relates to the species of Andrena.

"These bees are subject to the attacks of parasites: the first to be remarked upon are those bees which compose the genus Nomada; they are more popularly known as wasp-bees, since they bear a considerable resemblance to some of the small solitary species of that family. These parasites appear to be upon a perfectly friendly footing with the industrious bees, and are permitted, without let or hindrance, to enter their burrows. It has been advanced as a proof of the ingenuity and artifice necessary to be employed in effecting the deposit of their eggs in the working bees' nests, that the parasites should bear a close resemblance to the bees upon which they are parasitic: some instances may undoubtedly be advanced, as Apathus and Bombus, and also in the different species of Volucella which infest the nests of humble-bees, but amongst the solitary bees no such resemblance is required to aid in any necessary deception. It may be remarked that the two cases are not analogous: this is true; and I am not prepared to say that in the case of the Bombi and their enemies it may not be necessary, but as regards solitary bees it certainly is not;—colonies of Andrenidæ and their parasites mingle together in perfect harmony, issuing from and entering into the burrows indiscriminately. I have on several occasions watched with much enjoyment a large colony of Eucera longicornis, the males occasionally darting forwards with great velocity, then turning sharply round, and as it were swimming in circles close to the ground, then darting off again and again in an unceasing round of sportive enjoyment; their industrious partners, whose whole existence appears to be bound up in one unceasing round of labour, would occasionally return home laden with food for their young progeny. Sometimes it would happen that a Nomada had previously entered her nest; when such proved to be the case, she would issue from it, and, flying off to a short distance, wait patiently till the parasite came forth, when she would re-enter and deposit her burden. It will be observed, in this instance, that between Eucera and Nomada no resemblance exists in general appearance, one being several times larger than the other, and covered with pubescence of a sombre colour; whereas the parasite is a gaily coloured insect, destitute of pubescence, and readily observed from the brightness of its colouring. To some extent, I have observed that a constant connexion between certain species exists, and I have never met with some species of these parasites except in connexion with certain species of Andrena; but there are others, as Nomada ruficornis, succincta, alternata, and Lathburiana, which infest the nests of several species of Andrena indiscriminately; the species are, A. tibialis, Trimmerana, Afzeliella, and fulva; but the following I have never observed, except connected as follows: Nomada lateralis and A. longipes, N. baccata and A. argentata, N. borealis and A. Clarkella, N. germanica and A. fulvescens, and lastly, N. sexfasciata and Eucera longicornis. Much further investigation is still necessary before we can arrive at a knowledge of the real nature of the connexion which exists between the bees and their parasites. It has been supposed that the parasitic larva is hatched sooner than that of the rightful owner of the nest, and that it consequently consumes the food, and leaves the larva of the bee to perish; but to this I do not assent: it appears so contrary to all natural laws, that I cannot think it even probable: nature I have never observed to be thus wasteful of animal life—such a proceeding is unnecessary, and therefore unlikely: where a destruction of animal life is observed, it can usually be traced to some reasonable cause, as the destruction of the larvæ of certain Lepidoptera, being a check upon their superabundance: a parallel to this does not appear to me to exist in the case of the bees: I am more inclined to believe that when the parasite has deposited her egg upon the store of pollen, the industrious bee at once deserts it, and proceeds to construct a fresh burrow; and that the parasites which may be observed constantly entering different burrows, do so in order that they may find the requisite quantity of food, which will usually be much less than that required for the industrious bee; having found which, they deposit their egg, and the nest is then possibly deserted by its legitimate owner.

"The Andrenidæ are also subject to the attacks of other enemies, if so they can be called; we have seen that in the first place their food is attacked by Nomadæ; we are now to find their larvæ attacked by insects belonging to the Order Coleoptera; these belong to the genus Stylops, which several distinguished entomologists of the present day agree in placing among the Heteromerous parasitic beetles. These insects were placed in a new order by Mr. Kirby, named Strepsiptera, and as such they are still regarded by many entomologists; we have at present only to do with them as enemies to the bees, and briefly to narrate the manner in which the latter are attacked by them. These insects are diminutive in size, the largest known species not exceeding a quarter of an inch in length; we are now speaking of the winged males; the females are apterous grub-like insects, which never leave the bodies of the bees. If the abdomens of a number of Andrenidæ be examined, it is most probable that the female of Stylops will be found; her presence is known by the protrusion of her head and a portion of the thorax between the abdominal segments on their superior surface, resembling the point of a small bud of a brown colour, or rather a flattened scale. I have several times bred the larvæ of Stylops in the following manner: on finding a bee infested as described, place her in a box 5 or 6 inches square, cover it with gauze, and supply the bee with fresh flowers, such as the Andrenidæ frequent; examine the bee every day, and it is most likely that in eight or ten days she will appear as if her abdomen was covered with dust; examine it, and in all probability she will be found to be covered with an innumerable quantity of exceedingly minute animals; these are the larvæ of Stylops; by the aid of a magnifying-glass they may be seen to issue from the transverse aperture on the thorax: when the bee re-enters the cell, or settles upon flowers, these diminutive creatures will of course occasionally be deposited, and by these means, when other bees visit the flowers, they attach themselves to them and are carried to their nests. Judging from the multitude of larvæ produced by each female Stylops, amounting to many hundreds in each case, and the rarity of the perfect insect, the majority must perish, probably in the larval condition. From the fact of seldom more than two Stylops being found to infest the same bee, we may suppose that to be the largest number which infests one larva of an Andrena; they undergo their changes in the body of the bee, the male on its final transformation becoming an active winged insect, the female remaining a mere apod, attached for life to the bee which nourished it. A most complete and interesting summary of the observations of entomologists on these parasites will be found in the twentieth volume of the 'Transactions of the Linnean Society,' by Mr. George Newport, who has in this paper entered most minutely into the anatomy, functions and development of these remarkable parasites, being the most interesting and complete essay on the subject yet written.

"There are still other parasites to be noticed, which will occasionally be found on the bodies of these bees; the first to be noticed is a small orange-coloured Pediculus, which is about one-tenth of an inch in length; this is the larva of Meloë; I have several times reared these hexapods from the eggs of that beetle. For the most complete account of their history reference must be made to the twentieth volume of the 'Linnean Transactions,' which contains Mr. George Newport's most interesting memoir on Meloë cicatricosus; in this paper it is shown that the larva of the beetle feeds on that of Anthophora pilipes; but it remains to be proved that the larva of an Andrena can serve as food for the larva of a Meloë: I am inclined to think this can never be the case, and that the fact of our finding them on these bees is a mere indication of the usual habit of the larvæ in attaching themselves to any insect which comes in their way, for we as constantly find them on Diptera and flower-visiting Coleoptera as upon the Andrenidæ:—it has been shown that a larva of Anthophora will nourish that of Meloë, but so small a larva as that of Andrena can, I think, scarcely answer that purpose; I have however included them, but merely as supposed parasites on Andrena.

"We now come to the last supposed parasite on these bees; it is found on their bodies, and exactly resembles in form the last-mentioned, but is of a brown-black colour, and is full twice the size; they attach themselves to the hairy parts of the bees, as the metathorax, and the sides of the thorax beneath the wings. What these pediculi really are is at present involved in complete obscurity; Mr. Kirby regarded them as insects in their perfect condition, naming them Pediculus Melittæ. I have frequently observed these creatures in considerable numbers in the flowers of Ranunculus acris, as many as twenty or more in a single flower, about the month of April; and I think always before the usual time for meeting with the larvæ of Meloë. I have found them on various species of bees, usually on those which are most pubescent, as Andrena fulva, thoracica, and nigroænea; also commonly on Melecta armata, Anthophora retusa and pilipes: this circumstance would appear to confirm, or indicate a connexion between the insects, and from analogy we might readily conclude that this Pediculus must be a parasite on some species of bee; but we have nothing in support of this supposition, and against it we have the following observations:—Mr. Newport has shown that it cannot be the larva of Meloë cicatricosus, and, as well as myself, has proved that it cannot be that of M. violaceus or of M. Proscarabæus; and since the only other species of Meloë, the M. variegatus, does not occur near London, it appears certain that it cannot be the larva of any species of that genus, unless it be discovered hereafter that the larva of Meloë not only increases in size in its hexapod state, but that it also changes from bright orange to black.

"Another circumstance which induces me to hesitate in adopting an opinion of the Pediculus being a larva at all, is the fact, that on opening some cells of Anthophora retusa, which I dug up on Hampstead Heath, I found two living specimens of the hexapod in the same cell as the perfect bee; it is certainly possible that they might have subsisted on a portion of the food laid up by Anthophora; but here was no change of condition, and how came they into the cell? I am inclined to think that they, being insects in their perfect condition, came there exactly in the same way as we find Forficulæ, having forced an entrance, which I did not observe, and that they were in quest of food, seeking what they might devour."—P. 45.

'*The Natural History Review.*' No. VII., dated July, 1855; *price* 2*s.* 6*d.* London: Highley.

The following papers, read before Irish Societies, appear in the present number:—

'The Fjords of Norway and other similar Coasts.' By J. J. Murphy.

'Native Zoophytes.' By W. Thompson, Esq., LL.D.

'Notes on the Effects of the late Frost.' By Mr. Robertson.

'On the Occurrence of the Iceland Gull.' By Dr. Creighton.

'Notes on the South-West Coast, and on the Occurrence of the Greater Shearwater (*Puffinus major*).' By W. Andrews, Esq.

'Notes on the Occurrence of Ianthina communis and Spirula Peronii.' By Mr. Hopkins.

'On the Remains of Animals at Dunshaughlin.' By Mr. Wakeman.

'On the Habits and Varieties of some of the Laridæ.' By Mr. Watters.

'Notes on the Diurnal Lepidoptera, and on the Sphingidæ of some portion of Worcestershire.' By J. W. Lea, Esq.

'On Rearing Lepidoptera from the Pupa state, together with Notes on the Management of the Larvæ and Pupæ of Micro-Lepidoptera.' By Mr. Shield.

'List of Irish Micro-Lepidoptera.' By A. R. Hogan, Esq.

'Remarks on some rare British Insects.' By J. C. Dale, Esq., F.L.S.

'Entomological Remarks.' By A. H. Haliday, Esq., A.M.

Besides these contributions to science we cordially commend to the notice of entomological readers the able review with which the number commences: it is intituled 'Recent Works on the Diptera of Northern Europe,' and is very evidently from the pen of that eminent Dipterist, Mr. Haliday.

Mr. Haliday's 'Entomological Remarks' contains useful information. On the shore of the creek of Owenbeg river, within a space of a few yards square, he found the following maritime Coleoptera, besides others of less note:—Bradycellus pubescens, Pogonus chalceus, Bembidium laterale, Aëpus Robinii, Micralymma marinum and Heterocerus Marshami. It is remarkable that of this list only the first was known to Mr. Clear as a native of the county Cork. Mr. Haliday had never before seen them all associated. The Aëpus, which occurs also near Passage, appears to be confined to those parts of the coast, below high-water mark, where clay comes to the surface. Specimens from Scotland, the gift of Mr. Javet, were exhibited, also Aëpus marinus from Strangford. Mr. Haliday was disposed to doubt the importance of the distinctions assigned to the two alleged species, Robinii and marinus. The difference in the armour of the feet led him to suspect that a sexual distinction may have been treated as specific. He quoted the remarks under Ptilium pallidum in the 'Faune Françoise' of Fairmaire and Laboulbène: "Les angles posterieurs du corselet varient un peu, et il est facile, avec de la bonne volonté, de trouver des angles 'très obtus' et des angles 'prèsque droits;' mais selon nous ces deux termes sont fort exagérés." Agreeing with Mr. Haliday in the unsatisfactory nature of the diagnostics on which the species Robinii is founded, yet we cannot suppose with him that a sexual has been taken for a specific difference, seeing that from the three great stations of marinus, Devonshire, Queensferry and Strangford, not a single example of Robinii has been recorded; surely the sexes are not geographically separated. Mr. Haliday found at Blarney Lake last summer some specimens of Phytobius velatus, of which he possessed before but a single specimen, taken at Holywood. These were partly taken out of the water, partly swept off the stems of Equisetum, when the sun was shining strong. Beck, the discoverer of this species, has remarked that it swims fast and dives. The peculiar natatorial character of the legs was pointed out, being thinly furnished with long hairs, the tarsi without the broad felt-like sole usual in the family, and with scarcely any enlargement or notch of the penultimate joint, but with long claws like those of Elmis, &c., by which it clings to the submerged plants, Myriophyllum, Zannichellia, &c., among which are its haunts. A second species, Phytobius leucogaster, of which also specimens were exhibited, and which was taken by Mr. Haliday at Holywood, has the like structure in some degree, and the two have been separated from Phytobius by Redtenbacher, as the genus Litodactylus, but, as Suffrian has remarked, there is considerable difference between these two species, while a third, P. velatus, has the aquatic character much more marked than either.

'*Quarterly Journal of Microscopical Science, including the Transactions of the Microscopical Society of Landon.*' Edited by Edwin Lankester, M.D., F.R.S., F.L.S., and George Busk, F.R.C.S.E., F.R.S., F.L.S. London: Highley. No. XI., dated April. 110 pp. demy 8vo. letter-press and 2 plates; *price 4s.*

Although not bearing a "Natural-History" title this periodical has strong claims to be regarded as an emanation from our science. It is a kind of compound of the late Mr. Cooper's 'Microscopic Journal' and the admirable 'Transactions of the Microscopical Society.' Its contents will be given in future numbers of the 'Zoologist,' with a view to making it known among a larger body of naturalists than are at present aware of its existence. The contents of the present number are as under:—

'On the Development of Purpura Lapillus.' By William B. Carpenter, M.D., F.R.S., F.G.S., President of the Microscopical Society.

'On the Occurrence among the Infusoria of peculiar Organs resembling Thread-cells.' By George J. Allman, M.D., F.R.S.

'Snow Crystals in 1855.' By James Glaisher, F.R.S.

'An Investigation into the Structure of the Torbanehill Mineral, and of various kinds of Coal.' By John Hughes Bennett, M.D. F.R.S.E. [Extracted from the 'Transactions of the Royal Society of Edinburgh.']

'Observations on Noctiluca (miliaris ?).' By Dr. W. Busch. [Translated from 'Beobachtung. üb. Anat. u. Entwickl. einiger wirbellosen Seethiere,' p. 103. Berlin, 1851.]

'Researches on the Development of the Microscopic Algæ and Fungi.' By Dr. T. Cohn. [Translated from the German.]

Reviews:—'Principles of Comparative Physiology;' by W. B. Carpenter, M.D., F.R.S. 'The Microscope, and its application to Vegetable Anatomy and Physiology;' by Dr. Hermann Schacht;

edited by Frederick Curry, M.A. 'Lettsonian Lectures on Pulmonary Consumption;' by Theophilus Thompson, M.D., F.R.S.

Notes and Correspondence:—Feet and Wings of Insects; by Mr. John Tyrrell. The Markings of the Pleurostigmy, &c.; by Mr. G. Hunt. Definition of Delicate Test Objects; Anon. Cheap Microscopes. Cilia in Diatomaceæ; by Mr. J. Hogg. New Mode of Illumination; by Dr. Wright. On the Aperture of Object-glasses; by Mr. J. D. Sollitt. On Washing and Concentrating Diatomaceæ; by Dr. Munro. On Camphylodiscus Clypeus; by Mr. R. Wigham. Cilia on the surface of Confervæ; by Dr. Kingsley. On an Easy Method of Wiping thin Glass Covers; by William Hodgson. Metallic Impressions of Microscopic Objects; by Mr. Wenham. Note on Dr. Griffiths' paper on Angular Apertures; by the Editors.

Proceedings of Societies:—Microscopic, Royal.

Zoophytology.

'*A Manual of Marine Zoology for the British Isles.*' By PHILIP HENRY GOSSE, A.L.S. Part I. London: Van Voorst. 1855. 203 pp. 12mo, 335 figures in wood. Price 7s. 6d.

THE author's preface will thoroughly explain the object and scope of this little work. I have great pleasure in giving it entire. Mr. Gosse has certainly followed out his programme most usefully, although perhaps imperfectly, and we gladly accept this little summary of sea-side lore as an unassuming travelling companion that will always be in our pocket when we visit the coasts of our sea-girt isle. "*Imperfectly!*" Of course we must explain our meaning: Mr. Gosse is not always at home in his subject, and is compelled to seek information from scattered and sometimes rather obscure sources: thus, he tells us "Of the hundreds of thousands of insects known to exist but two live in the sea." The entomological reader will be surprised to hear that these two are Aëpus marinus and Microlymma brevipenne. These are land, not marine insects, and are only submerged at certain states of the tide, just in the same way as Aëpus Robinii, Broscus cephalotes and a host of others, but the truly marine and highly interesting Macroplea Zosteræ is entirely omitted. Now those who have read Mr. Gosse's capital account of Zostera marina, the food-plant of Macroplea, will not suppose him unacquainted with the beetle, but may infer that he did not know its name, or, more strange still, was not aware that it was a true insect. Doubtless

Mr. Gosse is better informed on most branches of the subject than on this; indeed, his published labours on the sea-coast convince us that he is so, and we cordially welcome the little book as a cheap and useful assistant to those sea-side visitors whose mental energies are unsatisfied with crochet and the last new novel.

"It is now about four-and-twenty years ago, that, in a land far remote from this, I began the study of systematic Zoology, with insects. It is, beyond all comparison, the most extensive class of animals, in fact all but boundless; but in my ignorance I attacked it entire and indivisible, collecting and trying hard to identify everything that I found, from the Cicindela to the Podura. I had not an atom of assistance towards the identification, but the brief, highly condensed and technical generic characters of Linnæus's 'Systema Naturæ,' over which I puzzled my brains, specimens in hand, many an hour. Of course there was much darkness, there were many egregious blunders; but perseverance did a good deal, and I have never regretted the time spent in that exercise. The leading forms of that great class were familiarized to me in a way that they never would have been if I had merely learned their names from coloured engravings, or from the oral information of some more learned friend; and what was of far greater value, I acquired the habit of comparing structure with structure, of marking minute differences of form, and became in some measure accustomed to that precision of language, without which descriptive Natural History could not exist.

"I have endeavoured in the following pages to furnish to the sea-side naturalist what the Linnean Genera Insectorum were to me. That such a book is a desideratum I need hardly say. Many a time have I been asked to indicate some published work, whereby the student who picks up a shell from the beach, or a worm from under stones at low water, may know what it is that he has found. I might indeed point to the admirable works of Yarrell, of Forbes, of Johnston, of Baird, of Bell, of Busk, and others who have written Monographs of particular classes or groups. But this is not what is wanted;—the information required is scattered through so large a number of volumes, that a book-case needs to form a part of the sea-side visitor's luggage. Moreover, to persons of limited income the expense of these works often forms an insuperable bar to their possession. Thirty pounds would not purchase the books neccessary for the identification of the marine animals of Britain; while if this sum were expended, there would still remain gaps of awful width,—whole classes, for the recognition of which *no English book is extant.*

I need only mention the Foraminifera, the Covered-eyed, and Ciliograde Medusæ, the Turbellaria, the Sessile-eyed Crustacea, the Annelida, and a portion of the Polyzoa, in proof of this alleged deficiency.

"Let it not be supposed that I think lightly of the Monographs I have alluded to. I should only convict myself of gross ignorance if I were to do so. They are of the highest value,—models of scientific research, acumen and accuracy; but the very care and labour which have been bestowed upon them, to give them the perfection they confessedly possess, have necessarily put them (as a whole body of science) out of the reach of the great multitude of students. My little book is not a rival, but an introduction, to these elaborate works. It is a Manual that can be carried in the pocket, and referred to as the tyro sits upon a weed-fringed rock, or stands on the tide-washed beach.

"I do not speak theoretically only, but experimentally, when I say that such a work as this is a felt need. Most of the books I have alluded to above are in my own library, but still I have often felt the want of a Manual which should contain the characters of every class, order, tribe, family and genus, of our native marine animals, so arranged as to be suitable for ready reference. The Manual did not exist, and I set myself to make it.

"I believe the student will find here the means of learning, with as little trouble and doubt as possible, the generic name of *every animal* that has been recognised by naturalists as inhabiting the British seas; from the lowest sponge up to the whale. To this universality there are only these exceptions:—

"1. That the intestinal worms (*Entozoa*) are not included. Properly speaking, they are no more marine than they are terrestrial animals; for though some of them live in marine animals their proper sphere is not the water or the land, but the living tissues of other creatures; they have a world of their own.

"2. That the swarming millions of animalcules, known as Infusoria, which the microscope reveals in the sea, as well as in fresh water, I have not included in detail, for reasons which will be found under the head of this class.

"Knowing by experience the difficulties which lie in the way of identifying animals by published characters, I have laboured to remove or to lessen those difficulties as far as was possible. I have endeavoured to make these pages practically useful to the beginner, while yet they should be precise enough to serve the advanced zoologist as a convenient medium of reference. Many of the difficulties in the path of science are not inseparable from it; the language used is often unnecessarily technical, and yet, strange to say, loose withal. Thus we sometimes find one species described as having 'the fore limbs short,' and the next, which is to be distinguished from it, not as having 'the fore limbs long,' but 'the anterior extremities elongated.' Sometimes in the long descriptions which must be waded through and carried in mind, the head in one case is mentioned first, then the tail, then the trunk, the limbs, and so on: but in the succeeding example, which has to be compared with it, perhaps the limbs come first, then the head, then the trunk, &c. Such difficulties as these are most perplexing; and yet it is easy to see that a little care might entirely remove them. If a certain order were maintained in the details of description of kindred forms, and a fixed phraseology, I need not point out how much the work of comparison would be lightened.

"In the wording of the following definitions I have endeavoured to make the phraseology as Saxon as possible. I am far from desiring to rob our language of its Latin element; it would be greatly impoverished by such a privation; and multitudes of words of Latin derivations are as familiar as the homeliest Anglo-Saxon. Still our scientific language might be much more Saxonised than it is, without losing that precision which is indispensable.

"On the other hand, the student must bear in mind that so many of the *ideas themselves* in modern science are new, and custom has so generally affixed to these new ideas classical expressions, that it would be both absurd and often unintelligible to substitute homelier expressions for them—to exchange, for example, such words as *thorax*, *abdomen*, *oval*, for *chest*, *belly*, *egg-shaped;* that others, as *homogeneous*, *parasitic*, *truncate*, &c., can be otherwise expressed only by using many words; and that not a few, as *cilia*, *tentacle*, *antennæ*, have really no correspondent words in Saxon English.

"I have, however, added a glossary for the explanation of such technical terms as were unavoidable; or else have taken care to expound them on their first occurrence. With these aids I trust there is not an expression in the book which a person of average English education will not understand.

"But what I consider the principal feature of this work is the copiousness and character of its illustration. Perhaps I may say that I have enjoyed more than ordinary facilities for a labour of this kind. Having been accustomed from childhood to draw animals from the life, I have accumulated in my portfolios about *three thousand figures* of animals or parts of animals, all drawn by myself from nature, of which about two thousand five hundred are of the Invertebrate Classes, and about half of these done under the microscope. The portion of the work now issued (Part I.) contains figures of three hundred and forty species,—*a figure of every genus named*,—of which one hundred and twenty are drawn from living, and one hundred and two from preserved, specimens. Those who are familiar with the subject will, I trust, acquit me of vain-glory in affirming that upwards of a hundred figures taken from *living* animals in these low forms, constitute a somewhat unusual feature in a book of this size and price. Of the *character* of the figures I must leave others to judge.

"The entire work will consist of two parts, each complete in itself. Part I., now issued, includes the following classes:—

I. Poriphora.
II. Infusoria.
III. Rhizopoda.
IV. Zoophyta.
V. Acalepha.
VI. Echinodermata.
VII. Turbellaria.
VIII. Annelida.
IX. Rotifera.
X. Crustacea.
XI. Cirripedia.
XII. Arachnida.
XIII. Insecta.

"Part II. is in a state of forwardness, and will be published as soon as possible. It will include the following classes:—

XIV. Polyzoa.
XV. Tunicata.
XVI. Brachiopoda.
XVII. Conchifera.
XVIII. Gasteropoda."
XIX. Pteropoda.
XX. Cephalopoda.
XXI. Pisces.
XXII. Mammalia.

The Glossary requires revision.

'*Annals and Magazine of Natural History.*' No. 94, dated October, 1855; *price* 2*s.* 6*d.* London: Taylor and Francis, Red Lion Court, Fleet Street.

The contents of the October number are as follows:—

'The Vegetable Individual in its relation to Species,' By. Dr. Alexander Braun. [Extracted originally from the Transactions of the Royal Prussian Academy of Sciences for 1853, but the English translation reprinted from 'Silliman's American Journal' for May, 1855.]

'Note on the Subgenus Limea, *Bronn*.' By John Lycett, Esq.

'Notes on the Brachiopoda observed in a Dredging Tour with Mr. M'Andrew on the Coast of Norway, in the Summer of the Present Year.' By Lucas Barrett, F.G.S.

'On the Young States of Some Annelides.' By R. Leuckart. [Extracted from Weigmann's Archiv, 1855, p. 63.]

'Observations on the Genus Assiminia.' By William Clark, Esq.

'On the Morphology of the Organs called Lenticels.' By M. E. Germain de Saint Pierre. [Extracted from the 'Comptes Rendus,' August 20, 1855, p. 305.]

Bibliographical Notice:—'A Manual of Marine Zoology for the British Isles;' by Philip Henry Gosse, A.L.S.

Proceedings of Societies:—Zoological, Linnean.

Miscellaneous:—Sibbald's Drawings of Scottish Animals; by the late Dr. George Johnston. Clausilia Rolphii; by Mr. S. P. Woodward. Note on Helix aspersa; by Mr. S. P. Woodward. Descriptions of some New Species of Birds; by the Viscount du Bus de Gisignies [extracted from the 'Bulletin de l'Academie Royale de Belgique,' vol. xxii. p. 150, 1855]. On the Operculum of Diplommatina; by Captain Thomas Hutton. Note on Aphyllanthes monspeliensis, and the New Family Aphyllanthaceæ; by M. Parlatore [extracted from the 'Comptes Rendus' for the 27th August, 1855, p. 344].

The specimen of Helix aspersa, or common garden snail, noticed by Mr. S. P. Woodward, is an adult shell with a second half-grown individual fixed to its spire and partly imbedded in the suture of the body whorl. The winter-door or epiphragm remains in the exposed part of the small shell's aperture, showing that it had died during the first hybernation, whilst its neighbour had survived, and, not getting free from the incubus of the empty house of the deceased, had partially enveloped it in the course of its growth to maturity.

Entomological Botany (with more especial reference to the Plants frequented by the Tineina). By H. T. Stainton, Esq.

(Continued from page 4842).

Prunus Cerasus. Cherry.

Speyer enumerates a great many of the plum-feeders as feeding also on cherry, but it is hardly worth our while to repeat this list; the special cherry-feeders that he mentions are Vanessa Polychloros (which we are inclined to doubt), Asteroscopus Cassinia, Diphthera ludifica (not yet known as British), Phæsyle psittacata, Tortrix sorbiana and Coleophora hemerobiella. The larva of Argyresthia ephippiella feeds in the leaf-buds in May, and the long mines of the larvæ of Lyonetia Clerckella are not unfrequently observed.

Prunus spinosa. Blackthorn; Sloe.

The list of Lepidopterous larvæ feeding upon this plant is not a short one: Speyer enumerates *Papilio Podalirius*, Aporia Cratægi, *Thecla Spini*, T. Pruni and T. Betulæ, *Procris Pruni* and *P. infausta*, Episema cæruleocephala, Cilix spinula, Drepana unguicula, Saturnia Carpini, Porthesia auriflua, Orgyia gonostigma and O. antiqua, Gastropacha quercifolia and *G. Pruni*, Lasiocampa Quercus and L. Rubi, Trichiura Cratægi, *Eriogaster everia* and E. lanestris, Clisiocampa neustria, Eyprepia grammica (surely some mistake, as this is a grass-feeder, and should be looked for in the open parts of woods in sandy places—in such localities I saw it quite common at Glogau, at the end of May), Hypercompa dominula, Acronycta strigosa, A. tridens and A. Psi, *Diphthera ludifica*, *Miselia culta* and M. Oxyacanthæ, Mamestra Pisi, Orthosia munda, *Catocala paranympha* and *C. hymenæa*, Ennomos lunaria, E. illunaria and E. illustraria, Angerona prunaria, Rumia cratægata, Ourapteryx sambucaria, Geometra vernaria and *G. bupleuraria*, *Aspilates purpuraria*, Crocallis elinguaria, Boarmia consortaria and B. rhomboidaria, Amphidasis pilosaria, *Nyssia pomonaria*, Biston hirtaria, Hibernia defoliaria, H. leucophæaria, H. rupicapraria, Anisopteryx æscularia, Harpalyce corylata, Steganolophia prunata, Abraxas grossulariata, Scopula prunalis, *Nola palliolalis* and Penthina pruniana. In the above list the species not yet detected in this country, many of which we certainly *ought* to find, are indicated by italics. An important addition to the above list, at least it will appear important to all our British Lepidopterists, is Valeria oleagina, of which Guenée says the larva feeds "in May and June on *Prunus spinosa*, principally in shady places or on the borders of woods." Myelois suavella and M. epelydella feed on sloe, and form long tubular galleries on the stems, the outside of which is concealed by a coating of "frass." Of the larvæ of the Tineina feeding on sloe a goodly number may be enumerated, and there can be little doubt that we are far from having exhausted the riches of this plant. Swammerdamia pyrella is frequently to be seen at home here, and Hyponomeuta padella is very abundant in the month of June: the larva of

Cerostoma horridella feeds on the sloe at the beginning of that month. In August and September the leaves will sometimes be observed with the two sides slightly drooping, this effect being produced by the larva of Enicostoma lobella, which feeds on the under side, in a silken tube which draws down the sides of the leaf: the larva of Ypsolophus fasciellus, on the contrary, doubles the leaves *upwards*, forming a complete chamber; it may be found in September. Dasycera sulphurella, which feeds on decaying sloe stems, as well as on almost any other kind of wood, is the next that claims our attention; it may especially be noticed where the black-thorn hedge has been clipped, profiting by all the clefts left in the branches where they have been cut, and betraying its retreat by a heap of ill-digested wooden "frass." Of the genus Argyresthia, the whitish-green larva of A. mendica, the orange-banded green larva of A. albistria (not unlike a miniature P. Machaon) feed on the young leaf-buds in May. Of the genus Ornix we have already bred two species, O. anglicella and O. torquillella, from sloe: the young larvæ mining the leaves might easily be mistaken for larvæ of a Lithocolletis young; but, on closer scrutiny, the mine will be observed much smaller than a developed Lithocolletis mine, for the larvæ of this latter genus have a prescience denied to man, and as soon as they escape from the egg (of which I believe they eat the shell, for hitherto I have been unable to find it), they commence making a mine big enough to last them the term of their natural lives; after which, though the larva trebles its size, the dimensions of the mine remain unaltered, except by the shrinking of the leaf. The Ornix larvæ, after quitting their mines, turn down the edge of the leaf, and feed on the inside of the tubular abode thus formed; any one possessed of eyes may find these freely on almost any sloe bush in July and September. The larva of Coleophora paripennella is to be found very commonly on sloe in autumn, its funny knobby case looking as if laid on the leaves, as in winter and spring we find it attached in the same flat position to the stems of the bushes or to palings. The larva of C. anatipennella carries his case erect, not that it holds its *head* any higher on that account, for it is its *tail* which is elevated at an angle of 90°: it is very common in May, and from its queer black look and pistol-shape is often wondered at by the *ignorami*. C. palliatella I never met with in *propriâ personâ*, so that I cannot say much about it; but as it carries a broad scaly flap on each side of its case, it is even a more extraordinary sight than its congener.

Coleophora nigricella feeds on the sloe, but not so commonly as on hawthorn and apple; its straight case is a very inferior piece of tailoring compared with the cases of the preceding species. Of the genus Lithocolletis but one species, the variable L. spinicolella, feeds on this plant; it mines the under side of the leaves, and makes but a small mine: the brown blotches on the surface of the leaves sometimes inform us that Cemiostoma scitella has not disdained to feed upon the sloe, though it is more frequently observed upon apple and hawthorn. Of the genus Nepticula the two now well-known species, N. plagicolella and N. Prunetorum, are all that we have at present discovered.

Prunus padus. Bird Cherry.

The especial food-plant of Hyponomeuta Padi, but not that I am aware interesting to us in any other way.

Prunus Lauro-cerasus. Laurel.

Though not generally attacked by larvæ, it is sometimes; I once saw a bush nearly stripped of its leaves by the larvæ of Episema cæruleocephala, and Mr. D'Urban informs me that he has bred both this insect and Porthesia chrysorrhæa from larvæ fed exclusively on this plant; the perfect insect must have been as hard to kill as Mithridates.

Spiræa Ulmaria. Meadow Sweet.

How the mere mention of the name of this plant reminds us of hay-fields and long summer's evenings, and rambles by the banks of streams. My Dipterist friends are of course well aware that there is a Dip. larva very abundant in the leaves of this plant in July: a Coleophora larva has been found on this plant, the case of which resembles the case of the elm-feeding C. fuscedinella, but the perfect insect was not bred, and so we only *suspect* that they should be referred to that species. Strange that a plant so plentiful should not be more patronised by Lepidopterous larvæ.

Spiræa Filipendula. Dropwort.

Abundant at Mickleham Downs, and on other similar localities, but not at present known as the food of any Lepidopterous larva.

Geum urbanum. Wood Avens.

A common but inconspicuous plant in hedge-bottoms and moist shady places; the flower so soon falls to pieces that it rarely attracts our attention, but the burr-like seeds are more conspicuous; the leaves are not unlike those of the bramble, but without thorns. The larva of Nepticula aurella is not uncommon in the leaves of this plant, and may be found in October, November, March, April, and June and July. The larva of Lampronia prælatella also patronises this plant, but as it more especially favours the wild strawberry, it is mentioned more in detail under that plant.

Geum rivale. Water Avens.

Babington says "damp woods," but though I have been in many a "damp wood" I never yet met with this graceful plant, which is of entomological importance, in order to assist us in unravelling the Linnean Pterophorus didactylus, for Linnæus says specially "Habitat in Geo Rivali," and we find in De Geer a full account of the larva of a "plume" feeding on this plant: he says that "he found the larvæ on the Geum rivale in great abundance in May; they generally keep on the flowers of the plant, and appear to like the calyces of the flowers, which they gnaw, and pierce through and through; neither do they spare the petals, which are equally to their taste, but they do not so willingly eat the leaves of the plant." It may be hoped that this notice will induce some entomologist to send me word that he has known this larva for the last ten or twenty years, and supposed everybody else knew it also. I have had abundant evidence, in the progress of this 'Entomological Botany,' of the truth of Mr. Lees' remark, that "the majority of collecting entomologists are *not of a literary turn*," each, like an animalcule, gyrates in his own small circle, knowing nothing of the larger world beyond.

Nepticula aurella and Lampronia prælatella both feed on this plant as well as on the preceding species.

H. T. Stainton.

Mountsfield, Lewisham,
October 5, 1855.

The Hedgehog devouring its own Young.—About the middle of last August a haymaker in this neighbourhood found a hedgehog's nest containing six young ones. He shortly afterwards mentioned the circumstance to a fellow-labourer, who bargained for the nest, with the intention of giving it to me. Happening to pass during the day, he told me of it, and showed me the nest, but, as the parent was absent, we agreed to leave the young ones (which were as yet blind, and could not be many days old) until we could catch her; this he succeeded in doing the following evening, when he took the whole home. For want of a more suitable cage, he placed them, nest and all, with some food, in an empty tub for the night, intending to send them to me next day. On visiting them in the morning, he was surprised to find five of the young ones eaten, and all of the sixth except the skin of the back, which was rolled up under the mother, where it remained until I removed it. The mother had undoubtedly made a meal of her young, since nothing could have entered the tub without displacing the covering, which was not moved. I have lately heard of another hedgehog killing her five young ones, under similar circumstances. This is of common occurrence amongst rabbits, but I have not heard previously of its being the case with regard to the hedgehog.—*J. F. Brockholes; 7, Egerton Terrace, Birkenhead, September* 29, 1855.

Note on the Cuckoo.—One morning, towards the end of last May, a country boy, who for two or three seasons has procured me some small birds' eggs, found the nest of a yellow bunting, containing one egg, which he left, expecting the bird to lay more. On passing the place during the day, he observed a cuckoo near, and on looking into the nest he missed the yellow bunting's egg, and found in its place that of a cuckoo. Country boys in this district generally pull a bird's nest out on robbing it, so that the cuckoo, in this case, must have taken the missing egg. There is a popular saying in Lancashire, that cuckoos suck birds' eggs in order to make their voices clear, and the above will tend to show that this is not entirely without foundation. The yellow bunting afterwards laid two eggs in the same nest, and then forsook it. In a few days the boy found another cuckoo's egg in a yellow wagtail's nest, and a third in a sedge warbler's. The statement may be relied on, since I have never detected the boy in trying to deceive me, although I have questioned him minutely.—*J. F. Brockholes; 7, Egerton Terrace, Birkenhead, September* 29, 1855.

Occurrence of the Hoopoe at Low Layton.—A person employed on Tyler's Farm, near Low Layton, being engaged in catching sparrows, had the good fortune to capture a young hoopoe, on the 7th of August last.—*T. Bramley; 9, Winchester Street, Waterloo Town, Bethnal Green.*

A Valuable Hen.—A friend of mine has a hen, which, last spring, laid five or six eggs per week, varying in weight from three to five ounces each: the shell of one which weighed five ounces is now in my collection; it is 3$\frac{1}{10}$ inches long and 2$\frac{1}{4}$ inches in diameter through the widest part, is roughly finished, and presents the singular appearance of having been in three pieces,—that is to say, the two ends appear to have been cemented to the centre portion before the whole was thoroughly hard. The egg contained only one yolk, which was small in comparison with the size of the shell. The hen combines the American, Dorking and a third breed of poultry.—*J. F. Brockholes; 7, Egerton Terrace, Birkenhead, September* 29, 1855.

Occurrence of Rosecoloured Pastors near the Land's End.—I have just seen four examples of the above beautiful bird, two males and two females; three of them were killed near the Land's End, and the fourth more eastward.—*Edward Hearle Rodd; Penzance, October* 9, 1855.

Occurrence of the Solitary Snipe near Penzance.—The first instance that has come to my knowledge of the solitary snipe having been seen or killed in Cornwall was one handed to me by the gamekeeper of W. B. Praed, Esq., of Trevathon, near this place, who told me he shot it in a small wet morass near St. Ives: its weight was just 7 oz., and from the indistinctness of the bars in its under plumage, with a remarkably short beak, I think it is a bird of the year.—*Id.*

Occurrence of the Spotted Crake and Avocet on the Exe.—On the 17th of September I shot a spotted crake (*Crex porzana*), which rose from a patch of rushes in our marsh. I believe this bird has occurred a few times before in this neighbourhood. On the 6th inst. a specimen of the avocet (*Recurvirostra Avocetta*) was killed on the mud-banks opposite the town of Topsham, on the Exe, by a man named Hall, who says he saw it feeding before he shot it, and that it worked its bill from side to side under water in a very curious manner: it was almost entirely white, having very little black on it, except the crown of the head and back of the neck. It is a rare bird on this river, and has seldom occurred here before. It has been well preserved by Mr. Truscott, taxidermist, Exeter.—*W. S. M. D'Urban; Newport, near Exeter, October* 11, 1855.

The Great American Snake caught.—The 'Buffalo Daily Republic,' of the 13th of August, announces the capture of the great American water-snake on that day in the Silver Lake, near Perry village, New York. On Sunday, the 12th, the snake came to the surface, displaying 30 feet length of his body. On Monday morning all were on the alert. At nine o'clock the snake appeared between the whaleman's boat and the shore: he lay quiescent on the surface, and the whaleman's boat moved slowly towards him, Mr. Smith, of Covington, pointing his patent harpoon. On reaching within ten feet of the snake, the iron whistled in the air, and went deep into his body. Instantly the whole length of the snake lashed the air, and he darted off towards the upper part of the lake, almost dragging the boat under water by his movement. Line was given him, and in half an hour his strength seemed much exhausted. The whalemen then went ashore, and gradually hauled the line in. When within fifty feet of the shore, the snake showed renewed life, and with one dart nearly carried off the whole line; but he was dragged slowly ashore amid excitement unexampled in the district. Four or five ladies fainted on seeing the snake, who, although ashore, lashed his body into tremendous folds, and then straightened himself out in agony with a noise that made the earth tremble. The harpoon had penetrated a thick muscular part, eight feet from his head. He is 59 feet 8 inches in length, and has a most disgusting look. A slime a quarter of an inch thick covers his body, and if removed is instantly replaced by exudation. The body is variable in size. The head is the size of a full-grown calf. Within eight feet of the head the neck gradually swells to the thickness of a foot in diameter; it then tapers down, and again gradually swells to a diameter of two feet in the centre, giving about six feet girth; it then tapers off towards the tail, and ends in a fin, which can expand in fan-shape three feet across or close in a sheath. Double rows of fins are alternately placed along the belly. The head is most singular. The eyes are large, staring and terrific, with a transparent membrane attached to the lids, protecting the eye without impeding the vision. No gills appear. The mouth is like that of the fish called a sucker; it can stretch so as to swallow a body a foot and a half in diameter: there are no teeth; a bony substance, extending in two parallel lines, covered the upper and lower part of the head. The sides and back are dusky brown; the belly is dirty white. Although sinuous like a snake, there are hard knot-like substances along the back. The harpoon is still in him. He lies in the water, confined with ropes, which keep his body in a curve, so that he cannot get away. He can use his head and tail, with which he stirs the water all aronnd. When he rears his head (which he generally keeps under water) he presents a fearful aspect. In expanding his mouth he exhibits a blood-red cavity, horrible to look at, and the air rushes forth with a heavy short puff.—*Times, October* 1, 1855.

The Loach or Beardie (Cobitis barbatula) *in Confinement.*—This little fish appears to be entirely destitute of the power of swimming as practised by the majority of fishes: it remains motionless at the bottom of the vessel during the greater part of the day, but towards evening, and also in showery weather, it frequently comes to the surface by a violent wriggling movement of its eel-like body; having reached the surface it is totally unable to remain there, either by a continuance of the exertion or by that easy floating which many fishes practise so gracefully: the moment the exertion ceases the fish falls heavily and languidly to the bottom, dropping from rock to rock, or from plant to plant, until it finds a resting-place, where, whether it is a stone or plant, it will remain perched, as it were, for hours: I have seen them rest apparently balanced cross-wise on the edge of a vertically-placed stone: aquatic progress seems the result of powerful exertion of the vertebræ. It is excessively voracious, and will consume an incredible number of small worms, that is of worms 1½ inch to 2 inches long; as soon as it seizes one it immediately stirs up the sediment at the bottom of the vessel, making the water so cloudy that the fish instantly becomes invisible. The operculum of the nostril stands up like a minute horn on each side of the face. I have never noticed any indication of familiarity in this fish: it is unconquerably shy, and although its voracity will not allow it to deny itself the gratification of devouring a worm in my presence, yet this is always accomplished *in nubibus*, as above noticed. I keep them in shallow milk-pans or glass globes with a few weeds, and never change the water, unless to cleanse the glass of Confervæ: I have found it die in a zinc tank. In a state of nature it lurks in long floating grass quite as commonly as under stones.—*Edward Newman.*

The Gudgeon (Gobio fluviatilis) *in Confinement.*—This fish, like the beardie, appears to be greatly addicted to reposing motionless on its belly: in this position it will remain for hours; but if the forehead be brought against the glass it darts round and round the vessel with inconceivable velocity: it has no disposition to float in swimming, but its movements, when rising to the surface, are not so laboured as those of the beardie, neither is its descent so languid and helpless. I have had one in a zinc tank with unchanged water for eight months, during which time it has greatly increased in bulk, consuming quantities of worms. The most interesting act I have observed in this fish is that of gliding on its belly, like a slug, up and down the perpendicular sides of a leaden cistern, without the slightest perceptible motion of fins or vertebral column. This fish thrives in a cistern into which water is daily admitted, and from which it is as constantly withdrawn, maintaining itself in good condition without other food than that contained in the water, which is much improved in purity and brilliancy by its presence.—*Id.*

Food of Fishes.—The preceding observation on the gudgeons thriving on the impurities of London water leads me to Dr. Knox's observations on the minute food of the vendace, &c. I am not only willing thoroughly to adopt the opinions expressed by Dr. Knox in his paper in the June number (Zool. 4709), but I had always supposed it a received fact that the principal food of very many fishes was the minute animal life contained in water, and invisible to our unassisted eyes.—*Id.*

Transparent Fishes.—At the recent meeting of the British Association for the Advancement of Science, Professor Kolliker, of Wurzberg, exhibited a series of transparent fishes from the coasts of Messina. The only known fish that can be at all compared with these, in the character of transparency, is the lancelet, *Amphioxus lanceolatus* of Yarrell, who gives an excellent figure and description at p. 618 of the second volume of the 'British Fishes,' a creature so jelly-like that the great naturalist Pallas actually considered it a slug; but the lancelet is regarded as a cartilaginous fish, while these novelties are osseous, and belong to the genera Leptocephalus, Helmicthys, Hioprorus and Telurus.—*Id.*

The supposed Male of the Argonaut.—In 1842 Professor Kolliker found, respectively on Tremoctopus violaceus and Argonauta Argo, two worm-like creatures closely resembling the Hectocotyle Octopodis described by Cuvier* as found on Octopus granulosus. In 1845 the learned professor communicated to Robert Brown his belief that these were neither more nor less than the males of the Cephalopoda on which he found them. At first sight the professor took them for epizootic worms, to which, from their white colour and numerous suckers, they bore a great resemblance; but when he examined them more accurately he found so many peculiarities, as the existence of a heart, arteries and veins, branchiæ, and coloured contractile pigment-cells, that at length he was compelled to abandon this opinion and adopt one widely different, namely, that they were the males of the most highly organized of all mollusks. In favour of this conclusion he urged that Hectocotyle Argonautæ and H. Tremoctopodis bear a close resemblance to Cephalopoda in general, and in particular to the genera on which they live, for they have the same spermatozoa, contractile pigment-cells, similarly-formed and similarly-organized suckers, and the same arrangement of muscular fibres: again, as to sex, 280 Argonauts examined were females, a male has never been found; the Hectocotylæ are males only, and are always found in the neighbourhood of the sexual organs of the Argonauts; finally, according to the observations of Madame Power and Signor Maravigna, the eggs of the Argonaut contain embryo Hectocotylæ: the last fact seems conclusive in favour of the professor's theory. The foregoing facts have been familiar to all English naturalists for the last ten years. At the recent meeting of the British Association Professor Kolliker exhibited specimens of Hectocotyle, curious eight-armed creatures, with one arm enormously developed, and said to retain vitality long after separation from the animal.—*Edward Newman.*

Scorpion taken at Dorchester.—I lately saw a scorpion taken at Dorchester by the Curator of our Museum there; but on inquiry I found it was captured at the bone-mills, and, as foreign bones are often imported for manure, its introduction seems easily accounted for.—*J. C. Dale; Glanville's Wootton, near Sherborne, September* 18, 1855.

A List of a few rather interesting Lepidoptera that have occurred in the neighbourhood of Plymouth:—

Thecla Betulæ. September 12th, flying about oak trees.

Deilephila Galii. September 5th, a full-fed larva of this species was taken in the garden of Admiralty House, Devonport, by the gardener, who states that a few days previously he took two others of the same species, but fearing they would injure the plants he cut them to pieces. Mr. Dell, of Devonport, is the fortunate possessor of this rare larva. It changed to the pupa the following day.

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* 'Annales des Sciences Naturelles,' 1st Series, vol. xviii. p. 149, date 1829.

Pœcilocampa Populi. September 6th, larva feeding upon poplars.

Lasiocampa Trifolii. This species, in the larva state, is very abundant on the coast from the beginning of May till the first days in July; and the imago from August 25th continues for about a month.

Apatela leporina. Within the last fortnight I have taken six larvæ of this species, feeding upon black poplars.

Heliophobus hispida. I had one of these rare moths come forth from a pupa I took on the coast.

Cucullia Chamomillæ. This summer I have taken five larvæ of this rather rare species.

Heliothis peltigera. Last year and this I have been fortunate enough to rear this rare species.

Ennomos illustraria. This is attracted by light better than by perhaps any other method.

The plumes are represented here by Pterophorus cosmodactylus, P. calodactylus, P. acanthodactylus, P. phæodactylus, and several others, as also the pretty Alucita polydactylus.—*J. J. Reading; 5, Union Street, Plymouth, September* 21, 1855.

Occurrence of Colias Edusa and Colias Hyale near Brighton.—From the 12th to the 22nd of September I have taken, near Kemp Town, five specimens of C. Edusa and two of C. Hyale, and one a female variety of Edusa, C. Helice, a very beautiful specimen, and the exact representation of the one figured in Humphrey and Westwood's book, and which in this neighbourhood seems a very rare insect with collectors: there have altogether been about thirty specimens of C. Edusa and four or five of C. Hyale taken by different collectors in the above locality.—*Frederick Sharp; 100, Trafalgar Street, Brighton, September* 24, 1855.

Double-broodedness of Gonepteryx Rhamni.—Mr. Stainton's inquiries respecting G. Rhamni, in the September number of the 'Zoologist' (p. 4813), are in effect already answered by the excellent remarks of my friends Doubleday and Douglas, which appeared at the same time. I believe no one ever doubted that the hybernated specimens laid eggs in the spring; but with regard to his second query, Do not these eggs produce larvæ which feed up in May? I may be allowed to say that, if such were the case, we should of course find them full fed at the end of that month; and how a larva which feeds on buckthorn, and takes nearly two months to arrive at maturity, could attain its full growth in this country by the end of May, I leave such profound botanists as Mr. Stainton to determine; it certainly appears to me, that for a large portion of its life it would have to subsist on the branches or *roots*, especially in such backward springs as the last. My experience fully confirms the statements of Messrs. Doubleday and Douglas, already published: I found the larvæ early in July last in all stages of growth; these of course were the progeny of the hybernated specimens, and it seems to me quite impossible for them to become full fed earlier in this country. I must protest against Mr. Stainton's assertion, that no one in Britain has noticed the transformations of G. Rhamni, merely because he has not done so himself. It is true Stephens says (Illust. Haust. vol. i. p. 9), "This insect is *apparently* double-brooded." Mr. Curtis ('British Entomology,' p. 175) says, "and the eggs which are then deposited (by the hybernated specimens) produce green caterpillars that feed upon the buckthorn, and again appear as butterflies in August." This is a plain and correct history of the insect, and published some years before Mr. Stainton commenced his able career as an entomological author. I fully admit that it would appear "the height of absurdity" if we were in reality less acquainted with the history of our Papilionidæ than of the Nepticulæ; but surely those entomologists who, like Mr. Stainton, have devoted themselves exclusively to the study of Micro-Lepidoptera, and have done the most to bring about such a state of things, ought to be the last to find fault with our ignorance of the larger groups. Mr. Stainton informs us, on the authority of Professor Zeller, that Papilio Machaon is double-brooded in Germany; such, I admit, may be the case, but am very certain there is only one brood of the species in this country, and am confident all British entomologists who have had opportunities of judging will support my opinion: the same remarks will also apply to Melitæa Selene and M. Euphrosyne. It appears to have been the custom in former days to imagine there were two broods of any of our Lepidoptera, of which examples might be found in the perfect state in May and August; but it is now a well-known fact that many species which pass the winter in the pupa state emerge therefrom throughout the whole of the following summer: two common examples, Notodonta Camelina and Acronycta Psi, may be given; the larvæ of these species may be found in all stages of growth from July to October, and the perfect insects from April to August following; the larvæ, which become full fed in July, produce in the early spring specimens of the imago, whilst those which do not assume the pupa state till late in the year emerge in the following July and August: a succession of specimens is thus produced, as in the case with Papilio Machaon, &c. It seems needless to add to Mr. Doubleday's unanswerable facts on the perfect condition of hybernated specimens. I will just add that Theristes caudella is well known to pass the winter in the perfect state, and occurs in perfect condition in the spring: on the 5th of June last I took a specimen of this species on Coombe Hurst, in the finest possible condition; of course this insect had existed in the perfect state since the preceding August or September: if such a delicate creature as this, possessing as it does the most ample cilia to the wings of any of our Lepidoptera, could survive the last severe winter in such an exposed locality without injury, we surely cannot be surprised at seeing G. Rhamni in good condition in the spring.—*Edwin Shepherd; 176, Fleet Street, October* 4, 1855.

Double-broodedness of Gonepteryx Rhamni.—So many letters having lately been published in the 'Zoologist' under this head, I would not trouble you with the following, did I not think it would tend to throw some light on this much-discussed question. Your correspondent, the Rev. Mr. Greene, asks "Has any entomologist ever seen G. Rhamni, either fine or otherwise, on the wing either in June or July?" In answer to which I beg to state that on the 12th of June last I took several specimens (and saw numbers of others) in Bickly Vale, on the river Plym (about five miles from Plymouth), in very fair condition, far better than they could possibly have been, I think, had they passed the winter in a torpid state, and been subject to the changes of our last cheerless spring: the warm, sunny days at the end of February and beginning of March usually bring out those that have hybernated, and had these specimens been on the wing since that period, whenever the weather permitted, I think they would have presented a most forlorn and ragged appearance, instead of a very fair one (the few previous days to the 12th having been rainy and cold, which might have destroyed their first brilliant appearance). In Devonshire the food of the larva, Rhamnus catharcticus, would probably, even in backward seasons, be sufficiently advanced to afford them support by the middle of April, so that no very rapid progress would be necessary to produce the perfect imago by the beginning of June; again, if these specimens had been on the wing the previous August and September, and again brought out by the warmth of a March sun, I think most entomologists will agree with me that their term of life must have been an unusually long one. I regret, owing to my embarking a few days afterwards with my regiment for Gibraltar, I was unable to visit the locality again to prove beyond doubt that they were to be taken during the remainder of the month. The specimens which I took are now at Gibraltar with the regimental baggage, to which station I am returning almost immediately, or otherwise I should have had great pleasure in forwarding one for your inspection.—*Charles W. Watkins; Clifton, October* 1, 1855.

Double-broodedness of Gonepteryx Rhamni.—I had no wish to say anything more about G. Rhamni, but I seem almost compelled to reply to Mr. C. R. Bree (Zool. 4871), and I may first remark that the question is not one of *inference*, but of *fact.* Mr. Bree will often find himself in the wrong, if he infers because an insect which appears at a certain period of the year is double-brooded, that another species, which appears at the same time, must be so likewise: the most closely-allied species often differ in this respect; take, for example, Harpalyce russaria and H. immanaria; these two species so nearly resemble each other, that it is sometimes rather difficult to separate the numerous varieties of each; yet the former is always double-brooded, while the latter has only one brood in the year. According to Mr. Bree's argument, Anthocaris Cardamines, which appears at the same time of the year as P. Rapæ, P. Napi and P. Brassicæ, ought to be double-brooded, because these three species are so; but, like G. Rhamni, it is most certainly single-brooded. Mr. Bree asks whether insects which hybernate disappear directly they emerge from the pupæ state, *if the weather is warm.* I reply, that some species most certainly do so, without any reference to the state of the weather, while others seem to continue on the wing in the autumn as long as the weather is fine. To Mr. Bree's next question, whether the intercourse between the sexes takes place in the autumn or in the spring—I answer, invariably in the spring, when both sexes hybernate, as is the case with the Lepidoptera. Mr. Bree's last sentences rather astonish me: he says, "Depend upon it that hybernation of the imago is an accidental or casual occurrence. It is opposed to the whole scheme of insect-life." Surely there is some mistake here, as I thought every entomologist was aware that numbers of species invariably pass the winter in the perfect state, and reappear and deposit their eggs in the spring. Having now replied to Mr. Bree's queries, I cannot conclude without saying that Mr. Stainton's statement, that no living British entomologist had been observant enough to have noticed the transformations of G. Rhamni, is a libel upon his fellow-labourers in Science. That some persons who profess to have a thorough knowledge of the transformations of the minute tribes are profoundly ignorant of the economy of the larger Lepidoptera, I can readily believe; but *all* have not begun at the wrong end. With regard to the first species in our catalogues, Papilio Machaon, I may just remark that I believe we have only one brood in a season: the perfect insects begin to appear in May, and keep coming out all the summer from pupæ of the preceding season. Last year I had about a hundred pupæ in the same cage; the first butterflies appeared at the end of May, and the last in the first week of September: I have had numbers of larvæ at different times, but never reared a butterfly from them the same season. Argynnis Selene and A. Euphrosyne abound here, but I never saw an autumnal specimen, and I rather doubt their being regularly double-brooded on the Continent. I am aware that in some seasons a few specimens occur in August and September, but I believe these are merely individuals which have gone through their changes prematurely, and are all barren. I have found the larvæ of A. Selene in the early spring sunning themselves on the dead leaves. I never saw the larva of A. Euphrosyne.—*Henry Doubleday; Epping, October* 10, 1855.

Double-broodedness of Gonepteryx Rhamni.—It is said that discussion elicits truth, and I hope it will do so in the present instance: I observe that while those gentlemen who advocate the double-broodedness of G. Rhamni have advanced no single fact in support of their opinion, those on the opposite side appeal to facts only. I have been an entomologist for thirty years, and I learned from positive observation in the second year of my collecting that there was but one brood of G. Rhamni in the year. Nothing can be more clear or more familiar to practical collectors. The hybernated insects are abundant in May: the female lays her eggs; the larva feeds in June and July; the perfect insect soon appears on the wing, and continues to fly until October, when it generally secretes itself for the winter. Mr. C. R. Bree infers from what he knows of the history of Speranza conspicuaria that the same history will serve for G. Rhamni. Inference is not fact. The facts, as repeatedly stated about G. Rhamni, are totally different. Mr. Bree draws another inference totally at variance with fact: he infers that hybernation is accidental or casual, and opposed to the whole scheme of insect-life; now, not only in G. Rhamni, but in polychloros, Io, Urticæ and Atalanta, it always takes place, and the only inference to be fairly drawn from the fact is that it always will.—*H. J. Harding; 1, York Street, Church Street, Shoreditch, October* 11, 1855.

[I can now positively state, from my own observations, made during 1855, that Gonepteryx Rhamni is only single-brooded. The term, however, should be explained. The first warm days of spring invite the perfect butterflies, which invariably hybernate, from their winter hiding-places: they copulate in May, and lay eggs on the buckthorn a few days after copulation: the caterpillars feed as soon as the leaves are ready for them: they are full-fed early in July, and become pupæ: these again become butterflies early in August: these butterflies never copulate or lay eggs during the remainder of the year; but on the first frost retire to winter quarters, emerging only on hot sunny days, until the following spring. Thus one cycle of animal life occupies an entire year, and this is what I call single-brooded. I hope I may without offence express an opinion at variance with that of Mr. C. R. Bree at p. 4872: Mr. Bree's opinion is couched in these words, "Depend upon it that hybernation of the imago is an accidental or casual occurrence. It is opposed to the whole scheme of insect-life." I have no hesitation in stating that in many species of Lepidoptera I have found hybernation of the imago to be the positive and constant rule. I have gone so far as to keep late pupæ of some of the Vanessæ in a very cold and dark cellar, with a view of retarding the assumption of the butterfly state; nevertheless most of them changed, and might be seen sitting on the walls and ceilings all the winter; and the few which remained unchanged until spring never became butterflies at all. I am doubtful whether the pupæ of these insects can withstand the cold of winter like those of the genus Pieris; but whether this be the case or no, I cannot for a moment doubt that it is for some good end in the economy of Nature that an Allwise Providence has ordered that certain of the insect-tribes should pass the winter as eggs, others as larvæ, others as pupæ, and the rest as perfect insects; the object of this rule may be inscrutable to us, but this is no ground for discrediting the evidence of our senses.—*Edward Newman.*]

Unusual abundance of Vanessa Io.—On the banks of the river Avon, a short distance from its confluence with the Severn, Vanessa Io was literally in hundreds: every head of Fuller's teasel (*Dipsacus Fullonum*) being covered with them; any one desiring to take specimens might have secured hundreds. Common as this beautiful insect is, I never before saw it in such unusual numbers: I had been in the same locality a few days before and did not see a single specimen.—*Charles W. Watkins; Clifton, October* 1, 1855.

Reputed British Butterflies.—I have found a few notes, written a long time ago, on certain butterflies which the late Mr. Haworth thought it would be better to expunge from the British list. When a person is proved guilty of trying to pass off as British what he knows to be foreign he ought to be well exposed, but he ought also to be thoroughly convicted of it. The Hesperia Vitellius of the old 'Entomological Transactions' is in my possession; it came from the collection of Dr. Abbott, who, I suspect, was a relation of Georgian Abbott [the joint author with Sir J. E. Smith of the 'Insects of Georgia']. I doubt whether Haworth rightly understood Abbott that he lately took H. Vitellius in Bedfordshire; it is more probable that he wrote he had "lately added it to his collection:" unfortunately Haworth destroyed Abbott's letter, in which the facts were mentioned. On seeking for this insect in the British Museum I could not find one exactly like it, but found a species like it on the obverse, but having the reverse entirely different, and another exactly *vice versâ*, the obverse different, the reverse similar. Mr. Westwood is quite mistaken about this insect, the species in his work having no affinity thereto. Mr. Westwood is no less mistaken as to the Hesperia Oileus of the 'Entomological Transactions,' as my original specimen from Dr. Abbott is H. Syrichtus, also a Georgian species, and very much lighter in colour than Mr. Westwood's Oileus. I observe the name Oileus is always quoted with a note of interrogation after it. As the original specimen of Thecla Spini came into my hands, I took it to the British Museum, and having compared it, with the assistance of Mr. F. Smith, I find it to correspond with the T. Silenus of the British Museum, which is identical with the T. Melinus of Hübner, and is a native of Brazil. The pin is old, and had a very foreign look about it. I think Haworth told me he received it from Captain Lindegren, or from a London dealer who said he took it near London. Be this as it may, it has no claim whatever to be considered a British specimen. I have seen no less than four species placed in collections as representatives of Haworth's Thecla Spini; one in the cabinet of the late Joseph Sparshall, who told me he received it from Haworth, who broke his pair to give him one: in another account Sparshall said he received it from Dr. Leach, in exchange for the Gastropacha Pini figured by Curtis. Curtis took a drawing of this insect but I do not know the name of the species. I have seen T. Ilicis, received from Mansfield, also placed as representing T. Spini. Lastly, I have a true T. Spini, received from Chapman, of York, mixed with British insects, and unset, but he very fairly told me he could not warrant its being British.—*J. C. Dale; Glanville's Wootton, near Sherborne, September* 18, 1855.

Capture of the Larva of Deilephila Galii and Stauropus Fagi at Devonport.—On the 3rd of September a friend of mine obtained possession of a larva of the rare D. Galii, taken in the gardens of Admiral Sir W. Parker, the present Port Admiral; two others had unfortunately been destroyed by the gardener a day or two previously. The same person also had, on the 8th of the same month, a fine larva of Stauropus Fagi brought him, taken in the park of the Earl of Mount Edgecumbe.—*W. H. Hayward; Devonport, October* 2, 1855.

Arcturus Sparshalii an Australian Insect.—Mr. Sparshall professed to be very careful not to admit foreign insects into his cabinet, and yet (perhaps by mistake) Arcturus Sparshalii, figured by Curtis, was said to have been taken by him at Horning, and the date given. Boisduval suspected this insect to be American, but there are a pair in the British Museum from Australia. Again, I received from him a specimen of Libellula Tillurgus, the L. Sparshalii of Dale, also taken at Horning, although an inhabitant of the other side of the globe. Sparshall said that as Machaon was taken at the Fens as well as in India and China, why should not other foreign insects occur at Horning?—*J. C. Dale; Glanville's Wootton, near Sherborne, September* 18, 1855.

Capture of Leucania musculosa at Brighton.—On the 17th of August I took, at a gas-light in this hospital, a male specimen of Leucania musculosa: it is a very perfect specimen, and has probably been seen at the Entomological Society by most of the London entomologists.—*John N. Winter; Sussex County Hospital, Brighton, September* 27, 1855.

Capture of Phlogophora empyrea at Brighton.—During the present month (October) I have taken, in company with my friend, Mr. Eagles, five specimens of Phlogophora empyrea at sugar: all the specimens are more or less worn.—*Id.*

[This beautiful insect, previously unknown as British, has been identified and named by Mr. Doubleday. Guenée gives the following references:—"Hüb. 63, 646; Tr. 1. 383; Dup. p. 345, plate 94, fig. 4. Dupenchel's is the best figure. Hab. Italy, central and Western France in September: never abundant."—*Edward Newman.*]

Note on the Habits of Epunda Lichenea.—The larvæ of this insect vary considerably, especially in depth of colour: whilst young many of them are of a beautiful pale green, having a soft velvety appearance, and others are slightly mottled with deeper green, which detracts somewhat from their beauty. On casting their skins, when about half-grown, they assume a very different appearance: in many instances the ground-colour becomes pale or dark olivaceous, whilst many still retain the green, and all become freckled with dusky black on the back and sides: along the back are three rows of dusky black markings, which arise near the head, and continue to near the anal extremity; these are triangular in shape, having their apices pointed towards the head, and in dark individuals they are nearly, if not quite, confluent: a line along each side and the pectoral legs are paler than the ground-colour of the back; the ventral and anal legs and the whole of the under side, in pale examples, still remains greenish, whilst in dark ones they are of an olivaceous green: there are a few hairs scattered over the back and sides, and the head, which is glossy, varies in colour from greenish to brown, in accordance with the larva. No material change takes place now until they are full-fed, with the exception that the general colour becomes darker. They feed voraciously on golden moss (*Sedum acre*), and sparingly on ragwort (*Senecio Jacobæa*), and grow rapidly. On arriving at maturity, which they do in April or early in May, they spin a loose and dirty web a little below the surface of the earth, wherein they undergo the pupa state. A few specimens of the imago occur during the last days of August, but the majority do not appear until after the first week in September. Like many other Noctuæ they are hatched principally during the afternoon, whilst the Diurnæ, on the contrary, generally leave the chrysalis early in the morning. This insect comes sparingly to syrup, though never, I believe, whilst quite fresh. Specimens may be taken more freely resting on dead fences after dark, when their evening flight is over.—*J. F. Brockholes; 7, Egerton Terrace, Birkenhead, September* 29, 1855.

Occurrence of Lithocolletis Bremiella in Britain.—At the October meeting of the Entomological Society Mr. Stainton exhibited leaves of Vicia Sepium mined by the larvæ of Lithocolletis Bremiella, an insect entirely new to Britain, since which Mr. Douglas informs me he has bred thirty or more of the same new species from similar larvæ.—*Edward Newman.*

Note on Tinea granella.—This species must be double-brooded, as I observed, on the 13th inst., many specimens settled on the walls of the granaries in Clink Street, Southwark, which, from their fine appearance, could not long have quitted the pupa state. There were also crawling about on the walls numbers of small larvæ, of a yellowish white colour with brown heads, which were most probably referrible to this species. I likewise noticed specimens of Calandra granaria.—*C. Miller; 17, Silurian Terrace, Brooke Road, Dalston, October* 15, 1855.

Note on Colymbetes dispar of Bold.—My Coleopterist readers will recollect that in the Appendix to the 'Zoologist' for 1849 (Zool. App. xxiv.) Mr. Bold described a Colymbetes under the name of dispar: the description was particularly minute, and the author appeared to have taken great pains to ascertain whether any previous description existed. I was unable to obtain a sight of this insect until February of the present year, when Mr. Janson very obligingly allowed me to see a pair presented to him by the discoverer, and it appeared to me that they closely resembled a species I have long known under the name of uliginosus, and Mr. Janson, in the 'Entomologist's Annual,' had previously expressed an opinion that it was probably a variety of that species. Within the last month Mr. Bold has most kindly and liberally sent me a series of both sexes, and I have thus been enabled to give the species a careful examination and comparison, the result of which is that I can discover no difference whatever between dispar of Bold and uliginosus of Paykull. On communicating this opinion to Mr. Bold, that indefatigable entomologist called my attention to the great dissimilarity of the sexes, a character which induced him originally to name the species dispar. On again referring to my sexes of uliginosus, I found the similarity complete in this respect also; and I may here observe that the discrepancy which frequently obtains between the sexes of the Hydradephaga does not appear to have been sufficiently noticed: in Dytiscus and Acilius the elytra are sulcated in the female, and this character appears to be represented, in many species of Colymbetes and Hydroporus, by a rougher surface, causing a dull appearance, which contrasts forcibly with the extreme glabrous and shining surface of the elytra in the males. On subsequently communicating with Dr. Power and the Rev. Hamlet Clark, I was delighted to find that those careful entomologists had, independently of myself and of each other, arrived at the same conclusion as to the identity of dispar and uliginosus. Another question, however, seems to arise, and the result will I believe be the retention of Mr. Bold's name. It is a well-known rule that two species in one genus cannot bear the same name: now, at the time the name of Colymbetes uliginosus was applied to the insect under consideration, there already existed a Colymbetes uliginosus, that specific name having been originally applied by Linnæus, as proved both by description and specimen, to the subsequently named fuliginosus of Fabricius, Gyllenhal and Aubé.—*Edward Newman.*

Occurrence of Scolytus destructor in Lancashire.— Mr. Bold's communication respecting this little "destructive" in the October number of the 'Zoologist' (Zool. 4873), reminds me of its occurrence, *on the wing*, at Stretford in this district in August last; a boat was being laden with recently-felled timber close by, out of which, I infer the insects came.—*J. Hardy; Radnor Street, Hulme, Manchester, October* 4, 1855.

Capture of Rhizotrogus ochraceus in Wales.—Mr. Weaver, during his late trip to North Wales, has met with this scarce insect in some abundance, flying by daylight. The insect is smaller and shorter than the familiar midsummer chafer known in our collections as Amphimalla solstitialis; the antennæ of the male are also very different, the club formed by the lamellæ is shorter, and the exterior margin, so conspicuously curved or concave in A. solstitialis, is nearly straight in R. ochraceus. This insect, the Rhizotrogus ochraceus of Burmeister's 'Handbook' ('Handbuch der Entomologie,' vol. iv. part ii. p. 415), is composed of two supposed species, which the author considers varieties: Var. *a*, *pronoto maris fœminæque parum villoso, pubescente* = Melolontha ochracea of Knoch (Neue Beitr. i. 90, 5) and Schönherr (Syn. Ins. i. 3, 176, 60); and Var. *b*, *pronoto maris dense villoso fœminæ pubescente* = Melolontha Fallenii of Gyllenhal and Schönherr (Syn. Ins. i. 3, 175, 51, App. 85, 118); Rhizotrogus Fallenii of Dejean's Catalogue; and Amphimalla Fallenii of Mulsant (Lam. d. Fra. 447, 4): it is mentioned by Stephens ('Manual,' p. 168), under the name of Fallenii, as having occurred in Derbyshire. I think Burmeister has done wisely in uniting these supposed species; but our insect being the var. *a*, and decidedly the Melolontha ochracea of Knoch, whose name has the claim of priority, there can be no doubt about the propriety adopting Burmeister's name of Rhizotrogus ochraceus. I should also state that Dr. Schaum, in the Stettin 'Catalogus Coleopterorum Europæ,' includes a third supposed species, the Amphimalla tropica of Mulsant, an insect with which I am totally unacquainted: he unites the three under the name of Rhizotrogus ochraceus.—*Edward Newman.*

Capture of Melolontha Hippocastani in Scotland.—Mr. Hislop, of Blair Lodge, near Falkirk, has had the good fortune to capture this species in some abundance in his own neighbourhood, and has enriched many of the London cabinets with specimens. At first sight it is distinguishable from Melolontha vulgaris by its conspicuously ferruginous pronotum: the anal style of the female is also much shorter than in that species. Mr. Stephens ('Manual,' p. 168) mentions this species as having occurred on the banks of Windermere: it has also been taken in Ireland.—*Id.*

Capture near London of a Coleopterous Insect new to Britain.—Mr. Janson, the talented Curator of the Entomological Society, is the fortunate captor of a Coleopterous insect quite unknown in Britain, if not altogether new to Science; he informs me it is related to Choleva, and possibly belongs to that curious genus of blind beetles called Adelops: Mr. Janson is investigating its history and nomenclature, and in due time will publish all particulars.—*Id.*

Occurrence of Acrida Standishii at Glanville's Wootton.—I was mentioning only two days ago to Mr. Haliday, who was here on a visit, that I had not seen Acrida Standishii for years, and to-day a female has been brought me, so that my old acquaintance has reappeared this season.—*J. C. Dale; Glanville's Wootton, Sherborne, October* 18, 1855.

Occurrence of Delphax longipennis at Glanville's Wootton.—While Mr. Haliday was here I took a specimen of a very good thing, Delphax longipennis: it is a very active insect, and difficult to secure. I think I had another in the net, but lost it.—*Id.*

Proceedings of Societies.

Entomological Society.

October 1, 1855.—John Curtis, Esq., President, in the chair.

Donations.

The following donations were announced, and thanks ordered to be given to the donors:—'Mémoires de l'Academie Royale des Sciences, des Lettres et des Beaux-Arts de Belgique,' Tomes xxviii. and xxix.; 'Bulletins de l'Academie Royale des Sciences, des Lettres et des Beaux-Arts de Belgique,' Tome xxi. Part 2, Tome xxii. Part 1; 'Mémoires Couronnés et Mémoires des Savants étrangers, Tome vi. Part 2; 'Notices Extraites de l'Annuaire de l'Observatoire Royale de Bruxelles pour 1855,' par le directeur, M. A. Quetelet; 'Sur la Relation entre les Températures et la Durée de la Végétation des Plantes,' par M. A. Quetelet; 'Annuaire de l'Academie Royale des Sciences, des Lettres et des Beaux-Arts de Belgique, 1855;' 'Bibliographie Académique ou Liste des Ouvrages Publiés par les Membres Correspondants et Associés Residents;' by the Académie Royale des Sciences, &c., de Belgique. 'Bulletin de la Société Impériale des Naturalistes de Moscou,' Année 1853, Parts 3 and 4; Année 1854, Part 1; by the Société Impériale des Naturalistes de Moscou. 'Bibliotheca Historico-Naturalis Physico-Chemica et Mathematica, von Ernst A. Zuchold,' Vienna, Jahrgang, 2 Heft, July bis December, 1854; by the Author. 'Proceedings of the Liverpool Literary and Philosophical Society during the Forty-fourth Session, 1854—55,' No. ix.; by the Society. 'The Journal of the Society of Arts' for September; by the Society. 'The Literary Gazette' for September; by the Editor. 'Hewitson's Exotic Butterflies,' Part 16; by W. W. Saunders, Esq. 'The Zoologist' for September and October; by the Editor. 'The Natural-History Review,' No. 7; by the Editor.

Election of a Member.

James John Reading, Esq., Plymouth, was elected a Member of the Society.

Exhibitions.

Mr. F. Smith exhibited a fine collection of Coleoptera, made during September, at Deal, including the following species:—

Gymnaëtron Beccabungæ
Ceutorhynchus Resedæ
Acalles misellus
„ Roboris
Sibinia primita
Erirhinus scirrhosus

Phytonomus fasciculosus
Otiorhynchus rugifrons
Limobius mixtus
Lixus bicolor
Apion vernale
„ Sedi.

Choragus Sheppardi
Helops pallidus
Haltica Modeeri
Harpalus cordatus
Amara curta

Also the following Hymenoptera, taken at the same time and place:—

Pompilus rufipes
„ plumbea

Pompilus crassicornis
Ammophila lutaria.

Astata stigma

Mr. Smith also exhibited a minute Dipterous insect, Elachipteron brevipennis, caught by him at Deal on the back of an Hemipterous insect, Nabis subaptera, in the act of inserting its ovipositor under the elytra.

The Rev. J. F. Dawson exhibited a fine series of both sexes of Harpalus cordatus, *Dufts.*, a species so rare in England that at the time his 'Geodephaga Britannica' was published (1854), only a single specimen was known. All the specimens he now exhibited were recently captured by himself at Deal.

Mr. Foxcroft sent from Perthshire for exhibition a box of Lepidoptera, of which the best species were Depressaria ciniflonella and Pœdisca ophthalmicana.

Mr. Bond exhibited a fine series of Heliophobus hispidus, recently captured by himself in the Isle of Portland.

Dr. Power exhibited a specimen of Dinodes Maillei, *Dej.*, taken among moss at Gurnard Bay, Isle of Wight by Mr. Arthur Adams. Mr. Dawson said that as this species was a native of the Morea, and was not found in the countries intermediate between these and England, it could hardly be considered indigenous to Britain: he had frequently seen insects not natives of this country floating in the sea off the Isle of Wight, which he suspected had been brought to the vicinity in ships, and it was possible a similar mode of transit might have occurred in this instance. Mr. Edward Sheppard said Mr. Adams had assured him that there was no mistake about this specimen, for he had a perfect recollection of its capture.

Mr. Newman exhibited a specimen of Xylocopa violacea, accompanied by the following memorandum:—"This bee was taken by Mr. Charles Wood at Dulwich Common the second week in June last: it had flown into a greenhouse, and Mr. Wood, who is a professional gardener, was attracted not only by its extraordinary appearance, but by its loud humming when on the wing. A bee, supposed to be of this species, is described and figured in the 'Monographia Apum Angliæ,' vol. ii. p. 310, and pl. xvii. fig. 9, under the name of Apis iricolor, but the specimen, now in the cabinet of our Society, is evidently an American species, and must have been introduced into Mr. Kirby's cabinet by some mistake. Donovan's 'British Insects,' vol. xii. p. 25, and pl. 403, fig. 1, may also be consulted. I believe the present to be the only really British-captured species of this beautiful bee, but it is very abundant in some parts of France, and I have seen many specimens in the garden of the Tuileries: the large importation of shrubs (especially orange trees) from the Continent for the Crystal Palace may perhaps account for its introduction. I should add that Mr. Wood, finding the interest I took in the capture, has most obligingly presented me with the specimen."

Mr. Stainton exhibited leaves of Vicia Sepium containing larvæ and pupæ of Lithocolletis Bremiella, a new British species, from the neighbourhood of Bexley. Only on Wednesday last he received some similar mined leaves from Frankfort, and, thus instructed, he succeeded in finding these examples on Friday; on Sunday two moths came out, and these were also exhibited.

The President exhibited a scorpion in spirit, presented to him by Mr. Henry Page as the largest ever seen in Sierra Leone.

Destruction of Crops by Insects.

Mr. Westwood said that Mr. D. W. Mitchell, the Secretary of the Zoological Society, had forwarded to him some withered turnip-leaves, as a sample of the plants on ten acres of land, all similarly caused to perish by the attacks of insects: these leaves were accompanied by many Syrphi; but these had not done the mischief, for, as was well known, they fed upon Aphides, which no doubt were the real depredators. Although the tubers would doubtless perish in consequence of the loss of the leaves, yet they were not affected by gangrene, and so there was no analogy with the destruction of the tubers of the potato, attributed by Mr. Smee to the attacks upon the leaves by the Aphis vastator.

Mr. Lubbock mentioned a similar destruction of turnip crop near Farnborough; and the President said he had heard of another instance near Cranford: he was also sorry to add that Athalia Spinarum or "the black nigger" of the turnip was very abundant this year in several districts.

Mr. Westwood also stated that there had been a vast amount of injury caused this year by the larvæ of saw-flies to pear, cherry, gooseberry and other fruit-trees, amounting in some instances to a total destruction: he thought it might be a very useful subject of inquiry, if the prodigious multiplication of these insects was due to any peculiarity of the season, especially as it appeared that, under some such influence, certain flowers had failed, and others had flourished this year better than usual.

Indian Lepidoptera.

Mr. Stainton read the following extract from a letter addressed to him from Calcutta by W. S. Atkinson, Esq.:—

"What mistakes writers at home make about exotic species! In Swainson's 'Zoological Illustrations,' second series, vol. iii. pl. 101, you will find the pupa of Papilio Polydorus suspended from the tail: this he should have known must be a mistake; I have had several, and of course, like the rest of the Papilios, its head is uppermost, supported by the silken girth. There is a strange confusion about P. Nomius, *Boisd.* (P. Niamus, *Swains.*): Swainson has a very good figure of this well-marked species (which I take here): he says, 'It is a native of *Southern* Brazil, and of such rarity that in two years we never met with more than one specimen;' and Boisduval, vol. i. p. 252, says, 'J'ai cru jusque'à ces derniers temps que les individus que je poissède venaient du Bengal, quoique Godart indique cette espèce comme d'Amerique; mais il me parait demontré aujourdhui que j'avais commis une erreur à habitat, puisque M. Swainson dit l'avoir prise lui-même dans le *Nord* du Brésil:' Swainson must surely be mistaken; for it is hardly likely that this insect is an inhabitant of both the old and new continents. Again, Boisduval, on the authority of Westermann, unites P. Pammon and P. Polytes as male and female: this is certainly not the case. P. Pammon is one of the commonest butterflies here, and I have had several females of the species; some of these, but not all, have red lunules below the central white of the posterior wings, in that respect resembling P. Polytes, but they are never without the band of white blotches on the anterior wings. Blyth, the Curator of the Asiatic Society's Museum here, entirely agrees with me in this; but he assures me that he has seen these two and P. Polydorus *in copulâ* with one another, but that he has tried in vain to rear a brood from them."

Mr. Westwood remarked that General Hearsey had brought from India Papilio Pammon and P. Polytes, which he had found united.

Elateridæ feeding on Aphides.

Mr. Douglas read, from the 'Entomologische Zeitung,' the following note by Pastor Kavall, of Courland:—

"I am able to confirm the fact that the Elaters do not confine themselves to vegetable juices, but attack Aphides. As long ago as June 7, 1847, I saw Elater tesselatus eat Aphides upon Viburnum opulus, and I observed it closely with a lens. I also noticed Elater Ephippium and E. elongatus on Prunus padus similarly occupied. At other times I have seen Elateridæ sucking (the juices of) plants."

Coleoptera of Siam.

Mr. Edwin Shepherd read the following extract from a letter addressed to Mr. Adam White by J. C. Bowring, Esq., Corr. M.E.S., at Hong Kong:—

"You may perhaps have heard that I accompanied my father on his mission to Siam; I did so for change of air, which I sadly wanted. I cannot say that I got the rest and quiet I needed, as we were fully occupied during the whole of our stay at Bangkok, and there was scarcely a night that we were not at it until half-past one or two o'clock: as the thermometer nearly every day was up to 92° or 94°, this was somewhat trying to a semi-invalid, and I am sorry to say I do not find any benefit to have accrued from my trip. Having been so busy you may imagine that I had not much time to bestow on our favourite Entomology; I brought away with me, however, some 500 Coleoptera, taken principally in doors, the insects having been attracted by the lamps: this number, considering all things, is very respectable; but, excepting a few longicorns and Rhynchophora, the species are of very minute size, the whole having been brought away in a pill-box; they are now being mounted, and cut a decent figure. I scarcely yet know how many species there are amongst them, but certainly over a hundred, and any duplicates I have shall go to the British Museum. Most of the insects which came in to the lights were small Bembidiidæ, Staphylinidæ and Pselaphidæ: of these last I have some sixty specimens, comprising five or six species. Bangkok, indeed, would seem to be the very metropolis of the Pselaphidæ kingdom, as every morning numbers were found drowned in the cocoa-nut oil in the burners, and I could have got many hundreds of these greasy gentry.

"The country seems to swarm with insects of all kinds, and any collector who could spare a season for Siam would reap a glorious harvest. On our way from Siam to Singapore we had to call at Pulo Aor to cut wood, having run out of fuel, and while our men were at work in their way, I was so also in mine. It was such a fatiguing matter to force a way through the jungle, the sides of the hill (the whole island being a mountain rising precipitously from the sea) being so steep that I was not very successful, and only obtained about forty Coleoptera, of one or two of which I have duplicates, and these you shall have.

"In Hong Kong Coleoptera I cannot be expected to progress very fast; it is a rare thing now for me to fall in with a novelty, but still I do so occasionally: the other day I got my first specimen of the only beetle in poor Champion's collection, which I did not possess when he left China,—an Orthogonius; I don't know whether it has been described. My Chinese Coleoptera now number some 1300 species.

"I fear we shall not get many novelties from Japan, under our new arrangements with that country; the place, I imagine, will be as much closed against us as ever, and Admiral Stirling's convention, instead of in any way rendering it accessible to us, seems to me to have quite a different bearing. I *had* quite been looking forward to the receipt of a host of curious forms from that extraordinary country, but I have completely given up all such expectations."

Mr. Newman communicated the two following notes :—

Note on Trochilium Chrysidiforme.

"In the report of the August meeting our Secretary has appended to the interesting record of the capture of Trochilium Chrysidiforme an assertion that the species had previously but two British representatives: if he will turn to page 3289 of the 'Zoologist,' he will find a record by Mr. Barron of the capture of a third specimen near Haslar Hospital."

Hats manufactured of the Silken Felt spun by Saturnia Spini.

"It will be recollected by several of our members that I had the pleasure of mentioning, at a former meeting, the fact of the silk of Saturnia Spini being applied to economical purposes at Vienna. I have lately learned from my friend Mr. Pretsch, who was also my original informant, that the silken felt which I then described has been most successfully applied to the manufacture of hats by Herr Flebus, of Vienna, who has taken out an Austrian patent for this object. The hats are extremely durable and perfectly waterproof, being rendered so by the glutinous nature of the silk itself: they are held in great estimation by sportsmen and gentlemen much exposed to the weather, but the cost has hitherto been too great to admit of any extensive sale. Herr Flebus is, however, about to establish a factory in the district of Erzgebirge, situate between Bohemia and Bavaria, induced by the abundance of the food of the caterpillar and the cheapness of human labour."

New Locality for Geodephaga.

Mr. Douglas said it might be worth while to inform Coleopterists that a week since he took Tarus axillaris and Licinus depressus three miles beyond Croydon: these species had not hitherto been found nearer to London than Reigate or Boxhill.—*J. W. D.*

Society of British Entomologists.

August 7, 1855.—Mr. Harding, President, in the chair.

Mr. Millar exhibited, among other Micro-Lepidoptera, specimens of Nothris Durdhamella, bred from larvæ found by Mr. Harding feeding on the wild marjorum (*Origanum vulgare*), and identical with a larva swept by Mr. E. Shepherd near Dartford, which a good deal resembled that of Gelechia rufescens. Mr. Harding stated that he had recently met with this species near Darenth.

Mr. Millar also exhibited a specimen of Colias Edusa, a male, taken by a friend near Darenth Wood, on the 22nd of July.

September 4, 1855.—Mr. Harding, President, in the chair.

Mr. C. J. Briggs was proposed as a subscriber.

The President exhibited a box of insects, taken principally on the coast of Kent; among them were the following:—Melitæa Cinxia, Sphinx Convolvuli, Lithosia pygmæa, L. quadra and L. complana; Acronycta auricoma, taken near Canterbury; Spælotis cataleuca, Eremobia ochroleuca, Heliothis marginata and H. dipsacea, Plusia orichalcea, Botys fuscalis, B. lancealis, Ceramia ligustrana, Timandra emutaria, T. imitaria, with a number of others. He said that he had also taken four larvæ of Deilephila Galii, and that three of them had gone into the pupa state. In all the years he had been an entomologist he had never seen such numbers of white butterflies as there were this year along the coast; their caterpillars had destroyed all the cabbages. Plusia Gamma and Xylophasia polyodon were also in such number as to be a perfect pest; the former, swarming among the flowers in the evening; the latter rendered sugaring quite a dead letter, as they came in swarms, and their pugnacious habits were such that they drove away any other insects that came: it was quite amusing to witness the battles that took place.

Mr. Millar exhibited specimens of Choreutes scintillulana, Swammerdamia lutarea and Peronea hastiana *var.* Bentleyana. Mr. Millar said the statement of Madame Leinig, that the larva of this species feeds upon birch, is certainly deserving of credit, as Mr. W. Machin has bred it from leaves of this tree, collected indiscriminately, and therefore has not any recollection of the larva. On the 2nd inst., he beat two specimens from a birch-tree in Headley lane: it is rather singular that the perfect insect should exhibit such a partiality for the Lombardy poplar; but Asychna modestella is extremely partial to the blossoms of Stellaria, yet there is no proof that this plant is the food of the larva.

Mr. Millar made the following observations on Cerambyx moschatus:—"I was much amused, one day last July, with the proceedings of a specimen of this common beetle: I had put it away in a chip-box, and on looking at it a few days after I found that it had gnawed the sides of the box, and was in consequence covered with small fragments of wood: its first care on being released from captivity was to free itself from these particles; for this purpose it laid its antennæ on the tarsus of the fore leg, then covered it with the tarsus of the second leg, and, elevating its head slowly, drew the antennæ through; thus was proved the use of the pulvilli, which acted as minute brushes, and cleaned the antennæ from the particles adhering to them: this operation concluded, the tarsi were raised to the mouth, and the palpi passed repeatedly over them, for what purpose I cannot say, but most likely to remove the collected fragments entirely from them. No sooner was the foregoing process ended than the long tibiæ were raised to the base of the elytra, and passed repeatedly over them, until every particle was removed. From some accident one of the wings had got attached to the tip of the corresponding elytron; this it discovered in an attempt to fly; and now to show the admirable conformation of so trifling an object as a beetle—without the least hesitation or sign of perplexity the spine at the base of the tibiæ was passed down the suture of the elytra repeatedly, until the obstruction was removed, and the insect able to fly."—*J. T. N.*

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